This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) A computer implemented method for allowing communication among processing nodes in a system, comprising:

receiving, with a host communication object executing in a communication node, a command from a host system to instruct a motion object executing in a component node to control an electro-mechanical component of the system to perform an operation, wherein the component node controls the electro-mechanical component of the system;

generating, with the host communication object, a message, including the command to instruct the motion object, to send to a work management object executing in a controller node, wherein the controller node manages system commands;

multitasking, by the communication, controller and component nodes, multiple program objects, wherein each of the communication, controller and component nodes;

transmitting and receiving data via a communication interface, by the communication, controller and component nodes, with the other nodes, wherein each node is associated with one component of the system; and

operating, by the communication, controller and component nodes, as a source node receiving a request from a source object in the source node to send a message to a destination object executing in a destination node by:

receiving~~, in a source node,~~ a request from [[a]] the source object executing in the source node to send a message to [[a]] the destination object executing in [[a]] the destination node~~, wherein each node includes a processor capable of multitasking multiple program objects and a communication interface to transmit and receive data with the other nodes~~;

determining~~, in the source node,~~ whether the destination node and source node are a same node;

invoking an operating system command ~~in the source node~~ to transmit the message to the destination object within the source node if the destination node is the source node; and

if the destination node is not the source node, ~~performing: (i)~~ then transmitting~~,~~ ~~with the source node,~~ the message to the destination node through the communication interface~~; and~~

[[(ii)]] operating, by the communication, controller and component nodes, as the destination node by invoking an operating system command in the destination node to transmit the message received from the source node to the destination object within the destination node.

2. (Previously Presented) The method of claim 1, wherein there is a message queue associated with each object in each node, and wherein the invoked operating system command in the source node transmits the message to the message queue associated with the destination object.

3. (Original) The method of claim 1, wherein transmitting, with the source node, the message to the destination node over the communication interface, comprises:

determining, in the source node, an address of the destination node that addresses the destination node when transmitting messages through the communication interface;

generating, in the source node, at least one message packet including the message, the determined address, and an address of the destination object; and

transmitting, with the source node, the at least one message packet to the destination node over the communication interface.

4. (Original) The method of claim 3, wherein the communication interface comprises a bus and wherein including the address of the destination node in the message causes the destination node to read the at least one message packet transmitted on the bus.

5. (Previously Presented) The method of claim 2, wherein sending the message to the destination object in the destination node comprises:

determining, in the destination node, the destination object for at least one message packet including the message;

extracting, in the destination node, the message from the message packet, wherein the invoked operating system command in the destination node transmits the message to the message queue associated with the destination object.

6. (Previously Presented) The method of claim 1, wherein transmitting, with the source node, the message to the destination node comprises:

invoking an operating system command, with the source object, to send the message to a message queue associated with a source network object in the source node;

determining, with the source network object, an address of the destination node that addresses the destination node when transmitting messages through the communication interface;

generating, with the source network object, at least one message packet including the message, the determined address of the destination node, and an address of the destination object;

transmitting, with the source network object, the at least one message packet to the destination node over the communication interface; and

receiving, with a destination network object, the at least one message packet, wherein the destination network object invokes the operating system command in the destination node to transmit the message to a message queue associated with the destination object in the destination node.

7. (Previously Presented) The method of claim 6, wherein routing the message, with the destination network object in the destination node, to the destination object comprises:

determining the destination object for the at least one message packet;

extracting the message from the message packet, wherein the operating system command is invoked to transmit the message to the message queue associated with the destination object.

8. (Canceled)

9. (Canceled)

10. (Currently Amended) The method of claim [[8]] 1, wherein the system comprises a storage library system, and the electro-mechanical component comprises a component of a storage library system.

11. (Original) The method of claim 1, wherein each object is assigned a unique object identifier in the system, and wherein the unique identifier is used within all nodes to identify the destination object to receive the message.

12. (Original) The method of claim 11, wherein each node is assigned a unique node identifier used within all nodes to identify the destination node to receive the message.

13. (Original) The method of claim 12, wherein a function call receives the request from the source object to send the message to the destination object, determines whether the destination node is the same node, sends the message to the destination object or causes the transmittal of the message to the destination node over the communication interface, and maintains the object and node identifier assignment, further comprising:

updating the node and object identifier used by each function call in each node to reflect a modification to the arrangement of nodes or objects in the system.

14. (Original) The method of claim 1, wherein each node transmits signals to determine an availability of other nodes on the communication interface.

15. (Currently Amended) A system in communication with a host system and for allowing communication among processing nodes in a system, comprising:

a communication node executing a host communication object;

an electro-mechanical component;

a work management object, host communication object, and a motion object;

a component node controlling the electro-mechanical component and executing the motion object;

a controller node executing the work management object, wherein the controller node manages system commands, wherein the host communication object receives a command from

the host system to instruct the motion object executing in the component node to control the electro-mechanical component of the system to perform an operation, wherein the host communication object generates a message, including the command to instruct the motion object, to send to the work management object;

wherein each of the communication, controller and component nodes ~~at least two nodes, wherein each node~~ includes a processor capable of multitasking multiple program objects[[;]] and a communication interface to transmit and receive data between the nodes;

source program logic implemented in the communication, controller and component nodes, wherein the node executing the source logic comprises a source node, wherein the source program logic causes the source node processor to perform:

(i) receiving a request from a source object executing in the source node to send a message to a destination object executing in a destination node,

(ii) determining whether the destination node and source node are a same node;

(iii) invoking an operating system command to transmit the message to the destination object within the source node if the destination node is the source node; and

(iv) transmitting the message to the destination node through the communication interface if the destination node is not the source node; and

destination program logic implemented in the communication, controller and component nodes, wherein the node executing the destination logic comprises a destination node, wherein the destination program logic causes the destination node processor to invoke an operating system command to transmit the message received from the source node to the destination object within the destination node.

16. (Previously Presented) The system of claim 15, wherein there is a message queue associated with each object in each node, and wherein the invoked operating system command transmits the message to the message queue associated with the destination object.

17. (Original) The system of claim 15, wherein the source program logic node transmits the message to the destination node over the communication interface by:

determining an address of the destination node that addresses the destination node when transmitting messages through the communication interface;

generating at least one message packet including the message, the determined address, and an address of the destination object; and

transmitting the at least one message packet to the destination node over the communication interface.

18. (Original) The system of claim 17, wherein the communication interface comprises a bus and wherein including the address of the destination node in the message causes the destination node to read the at least one message packet transmitted on the bus.

19. (Previously Presented) The system of claim 16, wherein the destination program logic for sending the message to the destination object in the destination node comprises:

determining the destination object for at least one message packet including the message;

extracting the message from the message packet wherein the invoked operating system command

transmits the message to the message queue associated with the destination object.

20. (Previously Presented) The system of claim 15, wherein the source program logic includes a source network object to transmit the message to the destination node by:

invoking an operating system command, with the source object, to send the message to a message queue associated with the source network object in the source node;

determining, with the source network object, an address of the destination node that addresses the destination node when transmitting messages through the communication interface;

generating, with the source network object, at least one message packet including the message, the determined address of the destination node, and an address of the destination object;

transmitting, with the source network object, the at least one message packet to the destination node over the communication interface; and

wherein the destination program logic includes a destination network object that receives, the at least one message packet, wherein the destination network object invokes the operating system command to transmit the message to a message queue associated with the destination object in the destination node.

21. (Previously Presented) The system of claim 20, wherein the destination network object routes the message in the destination node to the destination object by:

determining the destination object for the at least one message packet;

extracting the message from the message packet wherein the operating system command is invoked to transmit the message to message queue associated with the destination object.

22. (Canceled)

23. (Canceled)

24. (Currently Amended) The system of claim [[22]] 15, wherein the system comprises a storage library system, and the electro-mechanical component comprises a component of a storage library system.

25. (Previously Presented) The system of claim 15, wherein each object is assigned a unique object identifier in the system, and wherein the unique identifier is used within all nodes to identify the destination object to receive the message.

26. (Previously Presented) The system of claim 25, wherein each node is assigned a unique node identifier used within all nodes to identify the destination node to receive the message.

27. (Currently Amended) The system of claim 26, wherein the source and destination program logic ~~includes~~ include a function call that receives the request from the source object to send the message to the destination object, determines whether the destination node is the same node, sends the message to the destination object or causes the transmittal of the message to the destination node over the communication interface, and maintains the object and node identifier assignment, wherein the nodes further include program logic performing:

updating the node and object identifier used by each function call in each node to reflect a modification to the arrangement of nodes or objects in the system.

28. (Previously Presented) The system of claim 15, wherein each node transmits signals to determine an availability of other nodes on the communication interface.

29. (Currently Amended) An article of manufacture for allowing communication among processing nodes in a system in communication with a host system, wherein each node includes a processor~~, wherein~~ and a communication interface ~~enables~~ enabling communication between the nodes, wherein each node is associated with one component of the system, wherein the nodes include a communication node executing a host communication object, a component node executing a motion object, wherein the component node controls an electro-mechanical component of the system, and a controller node executing a work management object, wherein the controller node manages system commands, wherein the article of manufacture includes program logic for controlling the node processor operations, comprising:

code executed by the host communication object to:

receive a command from the host system to instruct the motion object to control the electro-mechanical component of the system to perform an operation;

generate a message, including the command to instruct the motion object, to send to the work management object, wherein the controller node routes the message to the work management object;

source program logic implemented in the communication, component, and controller nodes, wherein the communication, component, or controller node executing the source program logic comprises a source node, wherein the source program logic causes the source node processor to perform:

(i) receiving a request from a source object executing in the source node to send a message to a destination object executing in a destination node,

(ii) determining whether the destination node and source node are a same node;

(iii) invoking an operating system command to transmit the message to the destination object within the source node if the destination node is the source node; and

(iv) transmitting the message to the destination node through the communication interface if the destination node is not the source node; and

destination program logic implemented in the communication, component, and controller nodes, wherein the communication, component, or controller node executing the destination

logic comprises a destination node, wherein the destination program logic causes the destination node processor to invoke an operating system command to transmit the message received from the source node to the destination object within the destination node.

30. (Previously Presented) The article of manufacture of claim 29, wherein there is a message queue associated with each object in each node, and wherein the invoked operating system command transmits the message to the message queue associated with the destination object.

31. (Previously Presented) The article of manufacture of claim 29, wherein the source program logic node transmits the message to the destination node over the communication interface by:

determining an address of the destination node that addresses the destination node when transmitting messages through the communication interface;

generating at least one message packet including the message, the determined address, and an address of the destination object; and

transmitting the at least one message packet to the destination node over the communication interface.

32. (Previously Presented) The article of manufacture of claim 31, wherein the communication interface comprises a bus and wherein including the address of the destination node in the message causes the destination node to read the at least one message packet transmitted on the bus.

33. (Previously Presented) The article of manufacture of claim 29, wherein the destination program logic for sending the message to the destination object in the destination node comprises:

determining the destination object for at least one message packet including the message;

extracting the message from the message packet, wherein the invoked operating system command transmits

the message queue associated with the destination object.

34. (Previously Presented) The article of manufacture of claim 29, wherein the source program logic includes an a source network object to transmit the message to the destination node by:

invoking an operating system command, with the source object, to send the message to a message queue associated with the source network object in the source node;

determining, with the source network object, an address of the destination node that addresses the destination node when transmitting messages through the communication interface;

generating, with the source network object, at least one message packet including the message, the determined address of the destination node, and an address of the destination object;

transmitting, with the source network object, the at least one message packet to the destination node over the communication interface; and

wherein the destination program logic includes a destination network object that receives, the at least one message packet, wherein the destination network object invokes the operating system command to transmit the message to a message queue associated with the destination object in the destination node.

35. (Previously Presented) The article of manufacture of claim 34, wherein the destination network object routes the message in the destination node to the destination object by:

determining the destination object for the at least one message packet;

extracting the message from the message packet wherein the operating system command is invoked to transmit the message to a message queue associated with the destination object.

36. (Canceled)

37. (Canceled)

38. (Currently Amended) The article of manufacture of claim [[36]] 29, wherein the system comprises a storage library system, and the electro-mechanical component comprises a component of a storage library system.

39. (Previously Presented) The article of manufacture of claim 29, wherein each object is assigned a unique object identifier in the system, and wherein the unique identifier is used within all nodes to identify the destination object to receive the message.

40. (Previously Presented) The article of manufacture of claim 39, wherein each node is assigned a unique node identifier used within all nodes to identify the destination node to receive the message.

41. (Currently Amended) The article of manufacture of claim 40, wherein the source and destination program logic ~~includes~~ include a function call that receives the request from the source object to send the message to the destination object, determines whether the destination node is the same node, sends the message to the destination object or causes the transmittal of the message to the destination node over the communication interface, and maintains the object and node identifier assignment, wherein the nodes further include program logic performing:

updating the node and object identifier used by each function call in each node to reflect a modification to the arrangement of nodes or objects in the system.

42. (Previously Presented) The article of manufacture of claim 29, wherein each node transmits signals to determine an availability of other nodes on the communication interface.

43. (Previously Presented) The method of claim 1, wherein the operating system command invoked to transmit the message to the destination object if the destination node is the source node and if the destination node is not the source node comprises a same operating system function.

44. (Previously Presented) The method of claim 43, further comprising: wherein the operating system command invoked in the source node in response to determining that the destination node and the source node are the same queues the message in a message queue of the destination object, further comprising:

invoking the operating system command in the source node to queue the message in a communication interface object queue in response to determining that the destination node is not

the source node, wherein a communication interface object transmits the message from the communication interface object queue to the destination node.

45. (Previously Presented) The system of claim 15, wherein the operating system command invoked to transmit the message to the destination object if the destination node is the source node and if the destination node is not the source node comprises a same operating system function.

46. (Previously Presented) The method of claim 45, wherein the operating system command invoked in the source node in response to determining that the destination node and the source node are the same queues the message in a message queue of the destination object, wherein the source program logic further performs:

invoking the operating system command in the source node to queue the message in a communication interface object queue in response to determining that the destination node is not the source node, wherein a communication interface object transmits the message from the communication interface object queue to the destination node.

47. (Previously Presented) The article of manufacture of claim 29, wherein the operating system command invoked to transmit the message to the destination object if the destination node is the source node and if the destination node is not the source node comprises a same operating system function.

48. (Previously Presented) The article of manufacture of claim 47 wherein the operating system command invoked in the source node in response to determining that the destination node and the source node are the same queues the message in a message queue of the destination object, wherein the source program logic further performs:

invoking the operating system command in the source node to queue the message in a communication interface object queue in response to determining that the destination node is not the source node, wherein a communication interface object transmits the message from the communication interface object queue to the destination node.